

We Claim:

1. A method for producing an electronic component, which comprises:

providing a rewiring substrate with a central area having connecting pads for forming flipchip connections, and providing the rewiring substrate with edge areas having connecting pads for bonding connections;

providing a first lower electronic module formed as a semiconductor chip;

using flipchip technology to apply the lower electronic module to the central area of the rewiring substrate;

providing at least one second upper electronic module including a semiconductor chip and a rewiring structure with external contact surfaces;

applying a passive rear face of the upper electronic module on a passive rear face of the lower electronic module;

producing bonding connections between the external contact surfaces of the upper electronic module and the connecting pads in the edge areas of the rewiring substrate; and

packaging the upper electronic module and the lower electronic module and applying a plastic packaging compound to the rewiring substrate.

2. The method according to claim 1, which further comprises: before performing the step of applying the passive rear face of the upper electronic module on the passive rear face of the lower electronic module, testing the upper electronic module in an extreme temperature condition from -50°C to 150°C.

3. The method according to claim 1, which further comprises:

using at least one logic chip as the lower electronic module;
and

using at least one memory chip having the external contact surfaces as the upper electronic module.

4. The method according to claim 1, wherein the step of applying the passive rear face of the upper electronic module on the passive rear face of the lower electronic module includes adhesively bonding the upper electronic module to the passive rear face of the lower electronic module.

5. The method according to claim 1, which further comprises: using wire bonds to perform the step of producing bonding

connections between the external contact surfaces of the upper electronic module and the connecting pads in the edge areas of the rewiring substrate.

6. The method according to claim 1, which further comprises: performing the step of producing bonding connections between the external contact surfaces of the upper electronic module and the connecting pads in the edge areas of the rewiring substrate by first bonding wires to the connecting pads in the edge areas of the rewiring substrate and then bonding the wires to the external contact surfaces of the upper electronic module.

7. The method according to claim 1, which further comprises:

incorporating a central bonding channel in the rewiring structure of the upper electronic module; and

using bonding fingers and rewiring substrate lines to electrically conductively connect bonding connections of the central bonding channel to the external contact surfaces of the upper electronic module.

8. The method according to claim 7, which further comprises: covering the central bonding channel and embedding the bonding

connections of the central bonding channel with a protective sheath of plastic.

9. The method according to claim 1, wherein the step of providing the rewiring substrate includes: structuring a first metal plating on a printed circuit board to produce a central area with connecting pads for flipchip connections, edge areas with connecting pads for bonding connections, and rewiring substrate lines connected to through-contacts electrically connected to external contact surfaces on a structured second metal plating on the printed circuit board.

10. The method according to claim 1, wherein the step of packaging the upper electronic module and the lower electronic module includes using a transfer molding method to apply a filled epoxy resin to the rewiring substrate.

11. The method according to claim 1, wherein the step of packaging the upper electronic module and the lower electronic module includes using a dispensing method to apply a plastic packaging compound to the rewiring substrate.

12. The method according to claim 1, which further comprises: applying external contacts to external contact surfaces of the rewiring substrate.

13. An electronic component, comprising:

a rewiring substrate having a central area with connecting pads for forming flipchip connections, said rewiring substrate having edge areas with connecting pads;

at least one first lower electronic module formed by a semiconductor chip, said lower electronic module having contact areas electrically connected using flipchip technology to said connecting pads in said central area of said rewiring substrate, said lower electronic module having a passive rear face;

at least one second upper electronic module including a rewiring structure and a semiconductor chip with external contact surfaces, said upper electronic module having a passive rear face resting against said passive rear face of said lower electronic module;

a plurality of bonding connections between said external contact surfaces of said upper electronic module and said connecting pads in said edge areas of said rewiring substrate; and

a component package surrounding said lower electronic module and said lower electronic module.

14. The electronic component according to claim 13, further comprising:

a protective sheath;

said component package having material; and

said protective sheath forming a material boundary with said material of said component package.

15. The electronic component according to claim 13, wherein:

said lower electronic module is a logic chip; and

said semiconductor chip of said upper electronic module is a memory chip.

16. The electronic component according to claim 13, wherein:

said rewiring substrate includes a printed circuit board having an upper face with structured metal layers, a lower face with structured metal layers, and through-contacts electrically connecting said structured metal layers on said upper face and said structured metal layers on said lower face;

said lower face of said printed circuit board has external contact surfaces with external contacts;

said upper face of said printed circuit board has said central area with said connecting pads for forming flipchip connections;

said upper face of said printed circuit board has said edge areas with said connecting pads in said edge areas of said rewiring substrate; and

said upper face of said printed circuit board has rewiring substrate lines between said connecting pads for forming flipchip connections and said through-contacts.

17. The electronic component according to claim 13, further comprising an adhesive layer configured between said passive rear face of said upper electronic module and said passive rear face of said lower electronic module.

18. The electronic component according to claim 13, wherein:

said upper electronic module has an active upper face configured with a central bonding channel that has bonding connections;

said rewiring structure is configured on said active upper face of said upper electronic module; and

said rewiring structure connects said bonding connections of said bonding channel of said upper electronic module to said external contact surfaces of said upper electronic module.

19. The electronic component according to claim 13, further comprising:

a protective sheath;

said upper electronic module having a bonding channel with bonding connections; and

said protective sheath for said bonding channel and for said bonding connections of said bonding channel.

20. The electronic component according to claim 13, wherein:

said connecting pads of said rewiring substrate have surfaces;

normals to said surfaces of said connecting pads of said rewiring substrate point in a first direction;

said external contact surfaces of said rewiring structure have surfaces; and

normals to said surfaces of said external contact surfaces of said rewiring structure point in the first direction.

21. The electronic component according to claim 13, wherein said plurality of bonding connections include a bonding wire forming a bonding clip running from one of said connecting pads on said rewiring substrate to a corresponding one of said external contact surfaces on said upper electronic module.